(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) Publication number : **0 650 150 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number : **94307732.1**

(51) Int. Cl.[6] : **G07G 1/00,** A47F 9/04

(22) Date of filing : **20.10.94**

(30) Priority : **25.10.93 US 142527**

(43) Date of publication of application :
26.04.95 Bulletin 95/17

(84) Designated Contracting States :
DE FR GB

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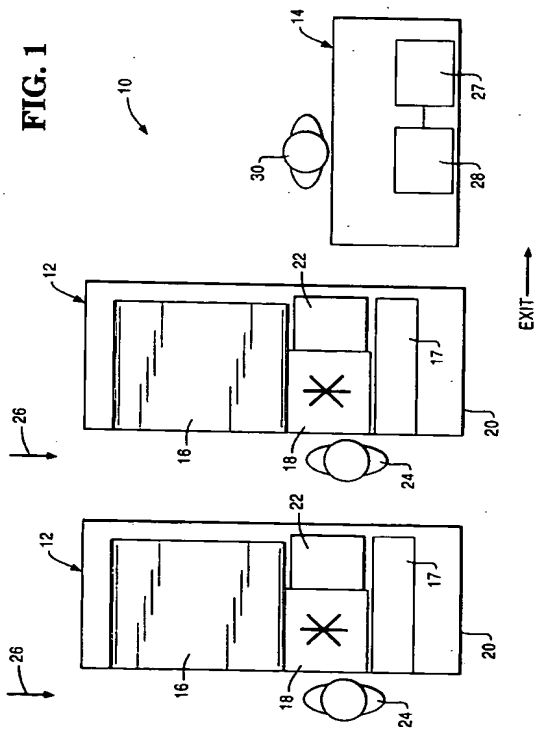
(54) Self-service checkout system.

(57) A self-service checkout system provides communication between a store employee (30) and customers (24) at a plurality of self-service checkout counters (11). Each checkout counter (12) includes a terminal (17), a bar code scanner (18), and a communication device (22). The communication device (22) includes a monitor, a speaker microphone for enabling a customer (24) to listen and speak to the store employee (30), a camera for allowing the store employee (30) to watch the customer (24), and a card reader for accepting payment. The system also includes a help and security desk (14) manned by the store employee (30) which includes a terminal (27), a monitor for viewing a customer (24), a speaker microphone for enabling the store employee (30) to listen and speak to a customer (24), and a controller which allows the store employee to select one of the customers (24) to view. The store employee (30) may view item descriptions and prices displayed on the monitors at the checkout counters (12).

FIG. 1



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The present invention relates to checkout systems and more specifically to a self-service checkout system.

Labour is a major cost in most point-of-sale environments, such as retail and grocery establishments. In fact, labour costs may account for as much as eighty percent of the cost of completing a sale. On the other hand, equipment costs may reach only about five percent of the cost of completing a sale.

Traditionally, checkout systems have included islands for servicing one lane and one customer per island at a time. These systems have been limited to full-service operation, which requires that each island be manned by at least a point-of-sale operator or checkout clerk. The operator scans, weighs, and bags items, and accepts payment. Such systems have the disadvantage that they are costly to operate.

It is an object of the present invention to provide a self-service checkout system which saves labour costs.

According to the invention there is provided a checkout system characterized by a plurality of self-service checkout counters, each including a terminal, scanner means coupled to said terminal for scanning merchandise items, and a card reader coupled to said terminal for reading customer payment cards; a station separate from said self-service checkout counters and arranged to be manned by a store employee; and a communication system for monitoring self-service customers by the store employee and for enabling communication between the self-service customers and the store employee.

One embodiment of the invention will now be described by way of example with reference to the accompanying drawings, in which:-

Fig. 1 is a plan view of a checkout system in accordance with the present invention; and

Fig. 2 is a block diagram of a communication system linking each checkout counter to a manned help and security desk.

Referring now to Figs. 1 and 2, the system 10 of the present invention includes self-service checkout counters 12, and a station, separate from the self-checkout counters 12, which is arranged to be manned by a store employee 30 and which is formed by a help and security desk 14. The self-checkout counters 12 each include a conveyor belt 16, a terminal 17, a bar-code scanner and scale device 18, a bag area 20, and a communication device 22. The scanner and scale devices 18 and the communication devices 22 are coupled to the terminals 17.

The help and security desk 14 includes a terminal 27 and a communication device 28. The communication device 28 is coupled to the terminal 27, and is similar to the communication devices 22.

Customers 24 pass through checkout lanes 26. They unload their items onto the conveyor belts 16. They scan items and weigh produce using the scanner and scale devices 18. Scanned items are processed by the terminals 17. After paying for their items, customers 24 exit the retail establishment.

A store employee 30 sits at the help and security desk 14 and communicates with customers 24 through the communication device 28. For those customers paying with cash, the store employee 30 accepts payment.

With reference to Fig. 2, the communication devices 22 and 28 are part of a communication system 34. The communication devices 22 each include a speaker microphone 38, a card reader 40, a camera 42, and a monitor 44. The communication device 28 includes a monitor 46, a speaker microphone 48, an optional camera 50, and a controller 52. The components of each of the communication devices 22 and 28 are shown in single housings 60 and 62.

Each of the communication devices 22 is coupled to the communication device 28 to provide audio and video communication between each of the checkout counters 12 and the help and security desk 14. The audio and video connections may be made through an ordinary audio-visual intercom link 54 or through a multimedia link 56 through a server 36. The speaker microphones 38 and 48 allow customers 24 to communicate with the store employee 30 in order to obtain assistance. The cameras 42 serve as security devices in that they allow the store employee 30 to watch customers 24 while they are scanning items and as they are putting items in bags. The optional camera 50 allows customers 24 to see the store employee 30 during a conversation. Preferably, the cameras 42 and 50 are wide angle video cameras. To accomplish a wide viewing area, the cameras 42 may be panned or a plurality of mirrors 64 may be employed to direct light from each viewing location to the cameras 42.

The monitors 44 and card readers 40 are coupled to the server 36 through the terminals 17. The monitor 46 is coupled to the server 36 through the terminal 27. The monitors 44 display description and price information for each scanned item. Using the monitor 46, the store employee 30 may view the same price and description information displayed on any one of the monitors 44. The monitors 44 and 46 are also coupled to video information from the cameras 42 and 50. The card readers 40 allow customers 24 to use a SMART card, credit card, or debit card to pay for the scanned merchandise items.

A controller 52 allows the store employee 30 to select any one of customers 24 to view on the monitor 46 using the camera 42. If the system 10 is an integrated computerized multimedia system, the controller 52 may be the terminal 27. The store employee 30 may view item descriptions and prices from any of the terminals 17 through the server 36.

The checkout counters 12 are arranged side-by-side in a row with the help and security desk 14 located at one end of the row adjacent an exit from the re-

tail establishment. The store employee 30 can receive payment at the help and security desk 14 if a customer 24 wishes to pay by cash instead of by card.

It should be understood that the checkout system described above with reference to the accompanying drawings has the advantage that labour costs are significantly reduced, while the help and security desk 14 provides adequate help to the self-service customers 24 and provides adequate security and deterrence against theft.

Claims

1. A checkout system characterized by a plurality of self-service checkout counters (12), each including a terminal (17), scanner means (18) coupled to said terminal for scanning merchandise items, and a card reader (40) coupled to said terminal for reading customer payment cards; a station (14) separate from said self-service checkout counters (12) and arranged to be manned by a store employee; and a communication system (34) for monitoring self-service customers by the store employee and for enabling communication between the self-service customers and the store employee.

2. A checkout system according to claim 1, characterized in that said self-service checkout counters (12) are arranged side-by-side in a row and said station (14) is located at one end of said row adjacent an exit.

3. A checkout system according to either claim 1 or claim 2, characterized in that said communication system (34) includes a first speaker microphone (38) at each of said checkout counters (12) for enabling a customer to listen and speak to the store employee, a camera (42) at each checkout counter, a further speaker microphone (48) located at said station (14) for enabling the store employee to listen and to speak to a customer, and a monitor (46) located at said station and coupled to each of the cameras (42) at said checkout counters (12) to enable the store employee to view the customers.

4. A checkout system according to claim 3, characterized by a controller (52) arranged to couple the camera (42) at a selected one of said checkout counters (12) to said monitor (46).

5. A checkout system according to either claim 3 or claim 4, characterized in that said communication system (34) includes a first housing (60) at each of said checkout counters (12) and containing said first speaker microphone (38) and said camera (42) at that counter, and a second housing (62) at said station (14) and containing said further speaker microphone (48) and said monitor (46).

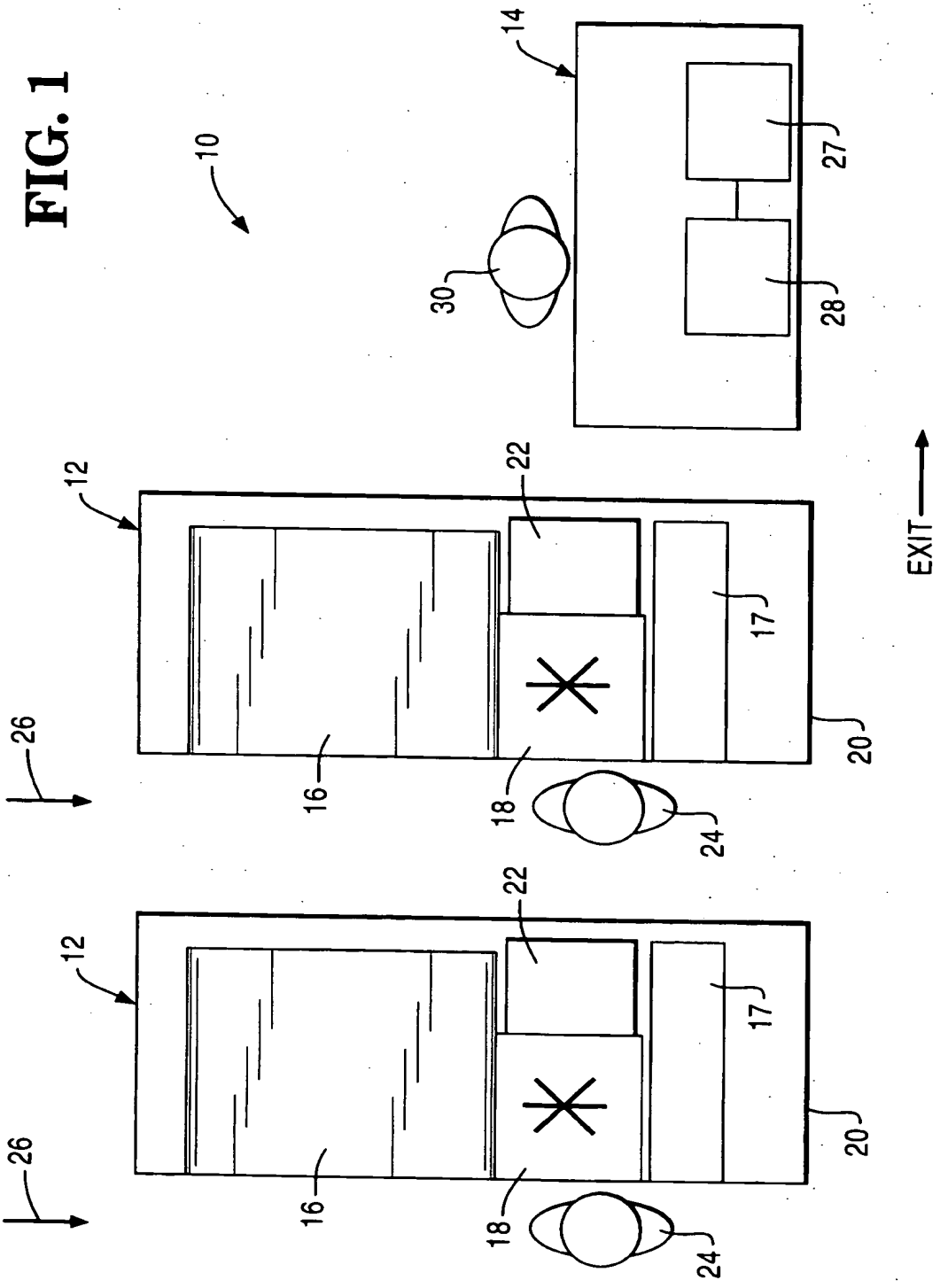
6. A checkout system according to any one of the preceding claims, characterized in that each of said checkout counters (12) includes a monitor (44) coupled to the terminal (17) of the counter and arranged to display item descriptions and prices after the items are scanned by said scanner means (18) of the counter.

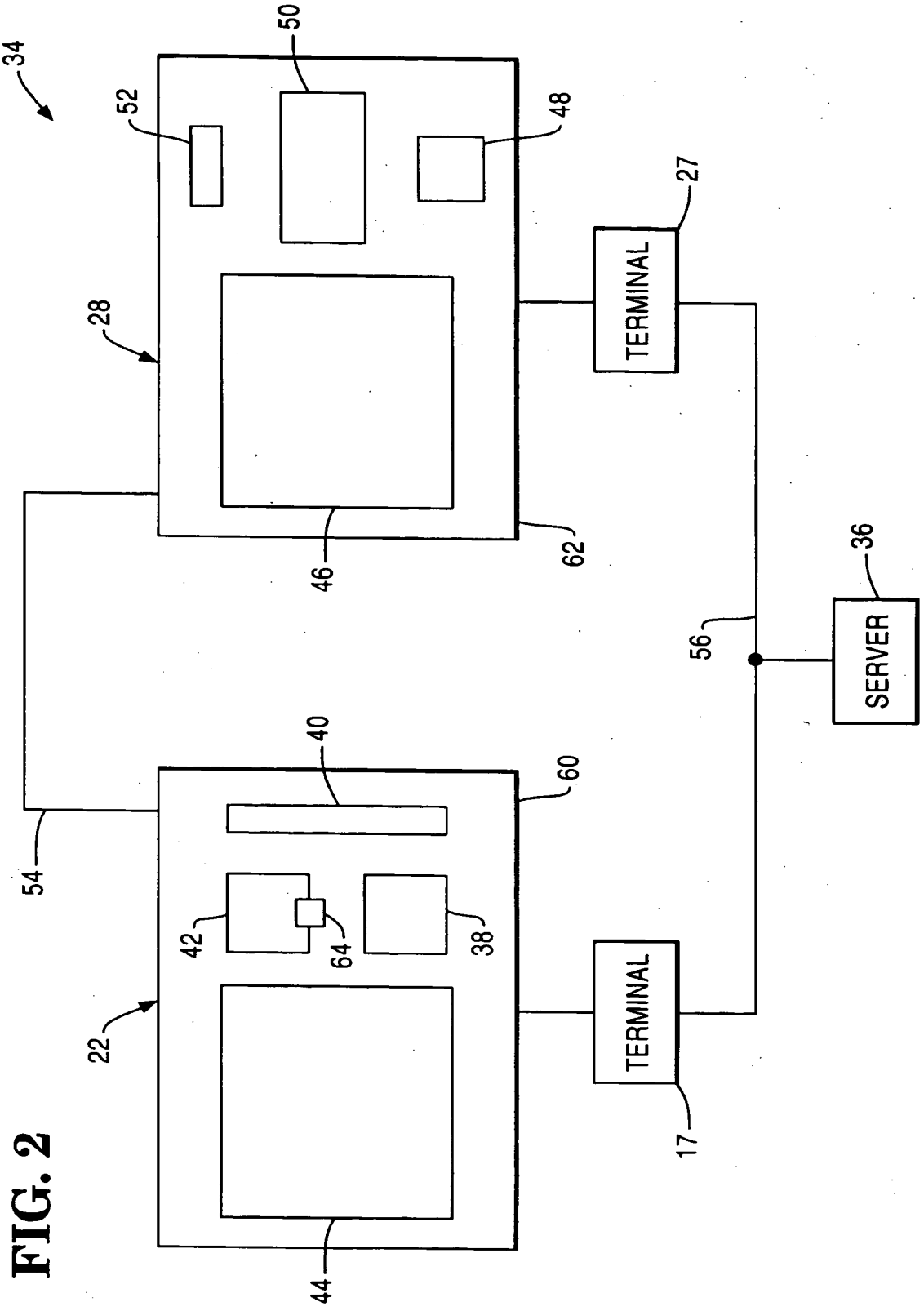
7. A checkout system according to claim 6, characterized in that said communication system (34) includes a camera (50) at said station (14) whereby the monitors (44) at said checkout counters (12) allow the customers to view the store employee.

8. A checkout system according to claims 3 and 6, characterized in that said station (14) includes a terminal (27), and in that there is provided a server (36) coupled to the terminal at said station and to the terminals at said checkout counters (12), whereby the monitor (46) at said station is enabled to display the same item descriptions and prices as the monitor (44) at a selected one of said checkout counters.

9. A checkout system according to any one of the preceding claims, characterized in that said scanning means (18) incorporates a bar code reader.

FIG. 1




34
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TERMINAL
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SERVER
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TERMINAL
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44

FIG. 2

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 94 30 7732

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION
X	US-A-5 115 888 (HOWARD SCHNEIDER) * column 9, line 32 - column 10, line 27 * * column 12, line 52 - column 15, line 37 * * column 20, line 20 - column 21, line 53; claims 1-12,15; figures 1,2,6,9 *	1-9	G07G1/00 A47F9/04
X	WO-A-90 15559 (SIEMENS NIXDORF INFORMATIONSSYSTEME) * page 10, line 26 - page 13, line 5 * * page 16, line 15 - page 17, line 19 * * page 26, line 26 - page 29, line 21; claims 1-5,22-31; figures 1,2,8,9 *	1-9	
A	EP-A-0 491 348 (MIKA MANNERJOKI ET.AL.) * column 3, line 36 - column 5, line 9; claims 1,2,4; figures 1,2 *	1,6,8,9	
A	GB-A-2 161 631 (CHECKROBOT) * abstract; claims 1-3; figures 1-7 *	1,2,6,8,9	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)
G07G
A47F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	17 January 1995	Guivol, O

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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EPO FORM 1503 03.82 (P04C01)